इंटरनेट मानक

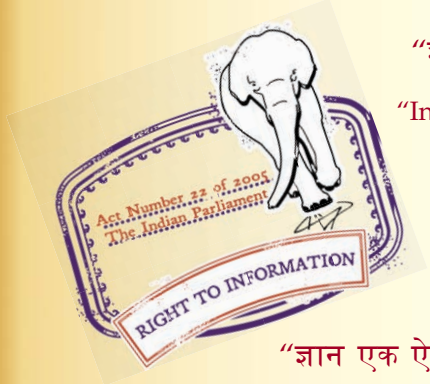
Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

"जानने का अधिकार, जीने का अधिकार"
Mazdoor Kisan Shakti Sangathan
"The Right to Information, The Right to Live"

"पुराने को छोड नये के तरफ"
Jawaharlal Nehru
"Step Out From the Old to the New"

IS 8404-1 (1977): Fixed Playground Equipment for Schools, Part I: General Requirements [PCD 22: Sports Goods]



"ज्ञान से एक नये भारत का निर्माण"
Satyanarayan Gangaram Pitroda
"Invent a New India Using Knowledge"

"ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है"
Bhartṛhari—Nītiśatakam
"Knowledge is such a treasure which cannot be stolen"

BLANK PAGE

Indian Standard (Reaffirmed 2000)

SPECIFICATION FOR FIXED PLAYGROUND EQUIPMENT FOR SCHOOLS

PART I GENERAL REQUIREMENTS

1. Scope — General requirements for fixed playground equipment and rope appendages for use by school children up to the age of twelve years.

2. Materials

2.1 *Steel Components*

2.1.1 *Tubes* — Conforming to Designation ERW21 of IS : 3601-1966 ' Specification for steel tubes for mechanical and general engineering purposes '. Second-hand or rusted tubes shall not be used in the construction.

2.1.2 *Fittings* — Made of steel conforming to IS : 226-1969 ' Specification for structural steel (standard quality) (*fourth revision*) '.

2.1.3 *Hooks* — Conforming to IS : 2759-1969 ' Specification for higher tensile steel point hooks for use with wire rope thimbles '.

2.1.4 *Bolts, nuts and washers* — Conforming to IS : 1363-1967 ' Specification for black hexagon bolts, nuts and lock nuts (dia 6 to 39 mm) and black hexagon screws (dia 6 to 24 mm) (*first revision*) '.

2.2 *Paints and Varnish*

2.2.1 *Priming paint*

2.2.1.1 *For metallic parts* — Conforming to IS : 2931-1964 ' Specification for ready mixed paint, brushing, aluminium-zinc oxide composite primer '.

2.2.1.2 *For timber* — Conforming to IS : 106-1962 ' Specification for ready mixed paint, brushing, priming, for enamels, for use on wood (*revised*) '.

2.2.2 *Undercoating and finishing paint* — Conforming to IS : 2933-1964 ' Specification for enamel, exterior, Type 2, (a) undercoating, (b) finishing, colour as required '.

2.2.3 *Tar-based paint* — Conforming to IS : 290-1961 ' Specification for coal tar black paint (*revised*) '.

2.3 *Rope and Twine*

2.3.1 *Rope* — Made of hemp or flax. It shall be four-strand, shroud-laid, with or without heart as ordered, and rot-proofed (*see* IS : 5176-1969 Specification for hawser-laid hemp line and ropes).

2.3.2 *Twine* — Made of hemp or flax.

2.4 *Concrete* — Made from materials conforming to the following standards:

Component	*Conforming to*
Cement	IS : 269-1967 ' Specification for ordinary, rapid hardening and low heat Portland cement (*second revision*) '
Aggregate	IS : 2116-1965 ' Specification for sand for masonry mortars ' or IS : 1542-1960 ' Specification for sand for plaster '
	IS : 383-1970 ' Specification for coarse and fine aggregates from natural sources for concrete (*second revision*) '

Adopted 11 March 1977

Gr 2

INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

2.5 *Timber* — Conforming to one of the species listed under Type A and Type B, depending on the use, listed in **2.5** of IS : 6869 (Part I)-1973 ' Specification for playground equipment for parks: Part I General requirements '.

2.5.1 The timber shall be seasoned to a moisture content of 10 to 15 percent. The slope of grain shall be not more than 1 in 15 to the straight edge of the piece. The timber shall be free from heartshakes, splits, rot, decay or insect attack. Small knots may be permitted if they are sound and tight, provided their diameter does not exceed $\frac{1}{8}$ times the width of the section on which they are present. Heartwood of non-durable type and sapwood of all species shall be treated for outdoor use as given in IS : 401-1967 ' Code of practice for preservation of timber (*second revision*) '.

3. Workmanship and Finish

3.1 Assemblies shall be plumb, true, rigid and permanently embedded in concrete blocks the upper surface of which shall be so formed as to drain off water. The gradient of the upper surface of the concrete blocks shall not exceed 1 in 10.

3.2 Vertical tubes embedded in concrete shall have at least 50 mm of concrete beneath the ends of the tubes or the sole plates.

3.3 Tubes shall be free from loose scale, rust or grease before any finishing is applied.

3.4 Work above ground shall be free from sharp edges and sharp projections.

3.5 Exposed ends of tubes shall be sealed to prevent the entry of water.

3.6 Welded joints shall be sound and neat. They shall be free from any welding flaws and shall be ground smooth to give a neat appearance.

3.7 Hooks shall be properly heat-treated and shall be capable of sustaining a load of 2·5 kN without visible deformation.

3.8 All metallic parts shall be protected by painting. The surface on which paint is to be applied shall be cleaned and rust-proofed by plating galvanizing, sherardising, aluminium spraying or zinc spraying [*see also* IS : 1477 (Part I)-1971 Code of practice for painting of ferrous metals in buildings: Part I Pretreatment (*first revision*) and IS : 1477 (Part II)-1971 Code of practice for painting of ferrous metals in buildings: Part II Painting (*first revision*)].

Where no rust-proofing treatment is applied, the steel work shall be carefully wire-brushed or grit-blasted to remove all loose scale. All grease shall be removed and surfaces made quite dry before painting is commenced.

The following coats shall then be applied as recommended by the manufacturer:

a) For components installed above ground:

   1) One coat of priming coat,
   2) One coat of undercoating paint, and
   3) One coat of finishing paint.

b) For parts buried underground:

   1) One coat of priming paint, and
   2) One coat of tar-based paint.

   Or

   Three coats of paints as for components installed above ground.

3.9 All wood work shall be painted by applying one coat of priming paint followed by one coat of undercoating paint and one coat of finishing paint in accordance with the manufacturer's recommendations [*see also* IS : 2338 (Part I)-1967 Code of practice for finishing of wood and wood-based materials: Part I Operations and workmanship and IS : 2338 (Part II)-1967 Code of practice for finishing of wood and wood-based materials: Part II Schedules].

3.10 *Concreting* — Concrete shall be of nominal 1 : 2 : 4 mix.

3.11 *Ground Work* — Equipment shall be fixed on ground which has been levelled and compacted.

If the manufacturer of the equipment is not also the erecting contractor, he shall provide complete fixing instructions for the erection of the equipment on site.

4. Maintenance

4.1 *General* — Steel tubular equipment embedded in concrete at ground level inevitably suffers considerable corrosion near its exposed base. Any protective coating on that part of the tubing is subject to damage by kicking. Regular inspection is therefore essential in order that prompt action may be taken as soon as the protective coating requires to be renewed; otherwise, the corrosive action of the weather will rapidly weaken the supporting tubes.

4.2 *Term of Certification* — The manufacturer shall dispatch by post to the site of delivery, at the same time as the equipment is dispatched, his certificate to the effect that the equipment complies with the requirements of this standard.

4.2.1 The certificate shall take the form of a maintenance card providing, in addition to the certification, 30 spaces for regular use by the purchaser. These spaces shall be used for entering the dates on which the equipment is inspected by the person(s) charged with the responsibility of maintaining the equipment together with the signature(s) of the person(s) concerned certifying whether the equipment on that date does require maintenance or not.

4.2.2 The manufacturer's certificate shall also contain maintenance instructions.

5. Marking — The equipment shall be prominently marked with the manufacturer's name, initials or recognized trade-mark.

5.1 *ISI Certification Marking* — Details available with the Indian Standards Institution.

6. Packing — The equipment shall be packed for delivery as agreed to between the purchaser and the supplier.

Printed at Neelkamal Printers, Delhi, India